



Breathing Life into Sound



Power Amplifiers  
Control Amplifiers  
Quartz Digital Synthesizer Tuner  
Compact Disc Players  
Dispersion Drive Speaker System & Subwoofer  
Stereo Field Speaker System

Bringing the exciting dynamics of live music home—that's the policy by which we build each and every dbx product. It's this policy that allows you to enjoy every subtle nuance of your favorite music—the only way to get that concert-hall magnificence in sound.

What are our credentials? Well, since we began nearly 20 years ago, dbx has been a part of the studio scene. Our first product was a dbx noise reduction unit for studio use. We've been committed to development of professional studio equipment ever since. Today, dbx is the first name in consumer processors.

We realized our expertise should be applied to more basic equipment—"mainstream" hi-fi components—to extend the dbx policy of bringing the real dynamics of live music home. Our power and control amplifiers are designed to recreate the natural acoustics of a concert hall and lively excitement of a live performance. Our CD players are made to give you the full excitement of digital recordings. And our speaker systems give you rich and sonorous sound that, until now, could only be enjoyed from live performances.

Let your music come alive with dbx.



## BX-3

### Power Amplifier

Backed by tremendous power, the BX-3 is simply superior when it comes to reproducing the highly dynamic sound of digital recordings. What's more, it's flexible. With its four independent power amps, you can use the BX-3 as (1) a 2-channel stereo amplifier, (2) a 3-channel amplifier with subwoofer output, or (3) a 4-channel amplifier.

When used to drive a pair of speakers, the four amps are connected in pairs for bridged BTL (Balanced Transformer-Less) operation. In this arrangement, the BX-3 delivers an awesome 350 watts of power per channel, continuous RMS, at 8 ohms, from 20Hz to 20,000Hz with no more than 0.01% total harmonic distortion.

Or keep the four amps separate to drive the front and rear channels independently, and you'll have a huge 125 watts of power for each channel, continuous RMS, from 20Hz to 20kHz with 0.003% total harmonic distortion.

Or use the BX-3 in a 3-channel setup to drive two main channels and a subwoofer system. This gives you 125 watts for each main channel and a massive 350 watts for subwoofer output.

And the BX-3 delivers more power dynamically. When set for stereo operation, it has a dynamic power rating of 600 watts per channel at 8 ohms, 800 watts per channel at 4 ohms, and a gigantic 900 watts per channel at 2 ohms.

Two breakthroughs have made this amazing design possible. First is the elaborate power supply system made to provide a consistently higher current supply. The system uses no fewer than four separate power supplies in combination with a high-regulation toroidal power transformer. Second is the use of 16 high-power transistors, each with a high  $P_c$  (Power loss) rating of 150 watts, in a parallel push-pull configuration. Put them together and you have a potential of 2.4kW of power!

And to ensure pure and transparent sound, we've used a DC configuration for all four amps, each

equipped with a dual-FET in the input stage. Another way to insure low noise is what we call "BTL-connection": two amps are bridged in a direct conversion connection in which the second amp doubles as a phase inverter. The absence of an extra phase converter results in lower noise.

For ease of use there are a number of features—two large peak power meters with X1.0 and X0.1 positions to show instantaneous peak power output, channel by channel, for the front or rear; volume controls for each of the four channels; and LEDs to indicate driven speakers and active amplifiers. On the rear there's an impedance switch for 2-to-6 ohms and 6-to-16 ohms, to allow you to drive any speaker system safely and effortlessly.





## CX-3

### Control Amplifier

The dbx CX-3 is unique: use it as a control center for your video system or as a control/preamplifier in a sophisticated hi-fi system. Either way, the CX-3 is unusually flexible, convenient, and versatile.

The CX-3 incorporates a surround sound processor with three setting positions: DOLBY® SURROUND to decode Dolby-encoded soundtracks of movie videos, MATRIX for musical videos and live performances, and SIMULATED STEREO to derive stereo-like sound from mono soundtracks. They improve video sound so much that even movies at home will have you feeling like you're in a first-rate theater.

Up to three tape decks, either audio or video, can be connected to the CX-3. You can mix audio and video in any combination, say two VCRs and one audio deck. In addition, there are inputs for five other audio components, and a high-gain phono equalizer is built in for compatibility with both MM and MC cartridges.

The CX-3 also lets you patch in an external processor like a dynamic-range controller; a convenient switch lets you monitor or record a program with or without the processing. The independent record output selector lets you listen to an audio source while recording videos. The triple tone control adjusts the frequency responses of bass, treble and mids.

Moreover, there are three separate regulators in the power supply, one each for phono equalizer, tone control circuit, and surround sound processor, so that each operates independently and without interference from the others. Each video circuit has a buffer amp to compensate for signal loss and to maintain picture fidelity. And audio and video circuits are isolated to prevent degradation of sound and picture.

"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

## TX-3

### Quartz Digital Synthesizer Tuner

With the TX-3, tuning is done using a rotary knob. An anachronism? Far from it. It gives you total and accurate control for easier operation, and matches your "analog" sense of direction.

The TX-3 has every feature a quality quartz digital synthesizer should. You can preset up to 16 stations—8 FM and 8 AM—for later instant recall. And you can automatically tune the next station at the touch of a button.

Auto IF Bandwidth gives you the best sound from each and every station. The IF bandwidth is normally wide to give you highest fidelity. But the moment interference is detected, the narrow bandwidth is automatically set to give you low-distortion reception.

dbx SNR noise reduction is built in to eliminate hiss and persistent high frequency noise from any FM program. It's a variable-frequency signal-pass processor that removes only harmful noise, without upsetting frequency response or separation of the music. Our NR audibly improves FM sound quality. And when the signal is too weak, Auto Hi-Blend kicks in to cut out excessive noise.

Other features are mono/stereo selecting, muting, output level control, hands-off operation from CX-2 control amplifier's remote control, and wood side panels.





**BX-2****Power Amplifier**

The BX-2 power amplifier has all the flexibility and versatility of the BX-3, but is designed for those who don't need quite so much power. Use the BX-2 as a high-power stereo amplifier, as a 3-channel amplifier with subwoofer output, or as a 4-channel amplifier for use in an audio/video surround sound system.

If you want to enjoy the very best of digital sound, we recommend that you combine the BX-2's four separate amps into two for bridged BTL (Balanced Transformer-Less) operation to drive stereo speakers. This way, the BX-2 gives you a huge 250 watts of power per channel, continuous RMS, at 8 ohms, from 20Hz to 20,000Hz with no more than 0.02% total harmonic distortion.

If you are into sound with extra depth, then a 3-channel arrangement is the way to go, with the two amps for the rear bridge-connected to drive a subwoofer. Power? You'll get 90 watts for each of the main channels and a big 250 watts for the subwoofer drive.

Want to be thrilled by the surround sound of movie videos? Then keep the four amps separate and drive four speakers independently. In this type of setup, you'll have 90 watts of power for each channel, continuous RMS, from 20Hz to 20kHz with 0.009% total harmonic distortion. We recommend a combination of the BX-2 and CX-3 for enjoyable surround.

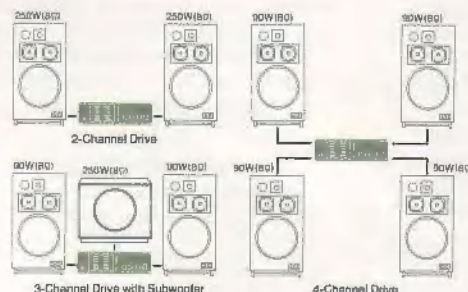
On an instantaneous basis, the BX-2 delivers much more: it has dynamic power of 320 watts per channel at 8 ohms when set to drive stereo speakers. This much power is your assurance that digital sound will come out dynamic and real.

Backing it all is the high current supply capability provided by the amp's power supply system. A toroidal transformer boosts efficiency. The power regulator for the initial stage is separate from the one for the power output stage to minimize interference. High-power transistors are employed for output devices. It's thanks to these features that you get the same superb performance from any configuration of amplifier setting and speaker setup.

Moreover, our power amplifier features a high signal-to-noise ratio. In "BTL connection," two amps are

bridged and connected directly in such a way that the second amp doubles as a phase inverter. This removes the need for an extra phase inverter, a component that can add noise.

The front panel of the BX-2 has a number of controls, switches and indicators designed to make operation easier. There are LED output level meters to show instantaneous peak power output, channel by channel, for the front or rear (switch selectable). There are volume controls for four individual channels, which can be completely bypassed to allow you to use an outboard volume unit. The front also has an LED power/protection indicator, and LED indicators to show driven speakers and active amplifiers.



Three Operation Modes

## Tremendous power, versatility and stunning flexibility

**CX-2****Control Amplifier**

The CX-2 is a versatile and flexible control amplifier for the digital age—a straightforward "line amplifier" with phono equalizer. Its connecting and control capabilities are extensive, yet operations are amazingly simple.

The CX-2 has comprehensive input and output capabilities. It connects no less than five inputs (PHONO, 2 sets of CD, TUNER and AUX) and five sets of input/outputs (TAPE 1 through 5). Two independent record program selectors let you cross-connect any two of the ten inputs to any or all of the five outputs. This means, for instance, you can dub from CD to TAPE 1 and from TAPE 2 to TAPE 3, while at the same time listening to FM! You can even dub a CD on two, three, four or five tape decks simultaneously!

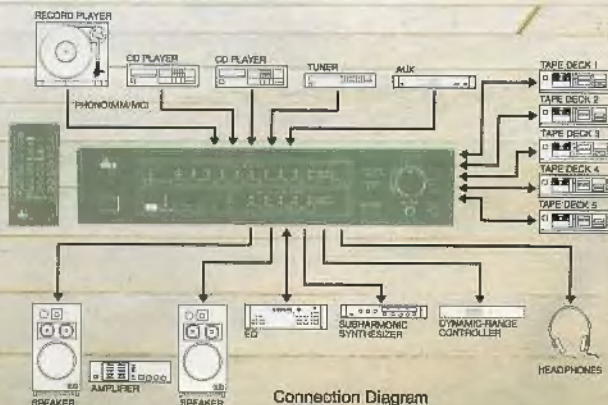
But there's more to the CX-2's connecting capabilities. Up to three

audio processors (dynamic range controller, graphic equalizer, subharmonic synthesizer, etc.) can be connected for individual or combined use.

Throughout the CX-2, switching and controlling is achieved electronically with the assistance of a microcomputer and ICs. This offers two advantages. One, using touch-sensitive tactile switches, operating feel is comfortable. Two, electronic control keeps insertion loss and crosstalk to a minimum. This is because electronic switching devices, located on the circuit boards, do the actual switching action, not the front-panel controls.

You can even operate the dbx CX-2 (and the dbx TX-3 FM/AM tuner) from across the room, for it comes with a wireless remote control. It lets you do nearly every operation from the comfort of your easy chair. The volume potentiometer the remote adjusts, by the way, is a motor-driven type, which is less noise-prone than electronic volume controls.

dbx gives you two ways to enjoy still purer, more direct sound, and the most dynamic digital sound. One is the "OUTPUT AMP" on/off switch; when set to OFF, input signals go straight to the output bypassing the output amp, with only the volume control left in the signal path. The second is the "DIRECT" output: the signal that appears at this terminal skips even the volume control, to give you purest sound.



Connection Diagram





# Definitive digital sound plus flexibility

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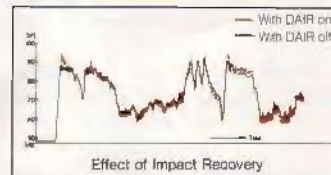
## **DX5** Compact Disc Player

The dbx DX5 lets you customize the sound of your Compact Discs—add more impact when it's lacking, tame dynamic range when it's too much, remove the "edge" that occurs in the sound of some CDs. You won't find another CD player that gives you this much control over digital sound.

First, the dynamic-range compressor lets you trim dynamic range by making soft sounds louder and loud sounds softer. It comes in handy when you want to bring out the softer sounds in music, when you want to listen to music at low levels, and when you want to dub CDs onto

tape (for play in a car, for instance).

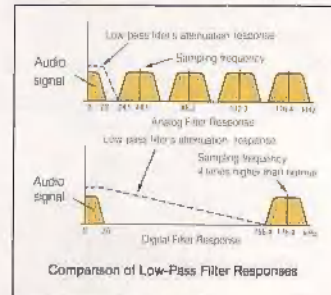
Second, the DAIR (Digital Audio Impact Recovery) adds more impact to digital sound. This is particularly useful when playing discs of "oldies" and "classics" recorded in pre-digital days. The dbx DAIR simply restores peaks lost or limited during mixing and mastering by emphasizing the attack of transient sounds for more impact.



Third, the ambience control removes rough edges heard in some CDs by blending the left and right channel information. As you adjust ambience, you control the width of

the sound "stage" as well, from wide to narrow.

The DX5 is made for better digital sound, of course. For one, it uses our 16-bit quadruple "oversampling" digital filter. Operating at a sampling frequency four times higher than normal, both stereo imaging and transient response are improved. For another, a dual 16-bit D/A (Digital-to-Analog) converter reduces "glitch"



noise and improves high-frequency response. The 3-beam laser pickup ensures precise tracking accuracy and makes the unit less prone to tracking errors caused by disc eccentricity, warp, scratches or dirt.

Our CD player offers amazing convenience, too. A remote, with a numeric keypad, lets you handle almost any player operation right from the comfort of your chair. And the DX5 comes with more: 16-track random-access programming, 3-way repeat (a single track, a phrase between two points, or programmed tracks), track skip, search, and index search. The multi-way display shows track numbers, elapsed time, remaining time (for both disc and track), and other important information. And there's an LED "dynamics" display to show the operation of the built-in processors.





# in operation and sound control

## DX900 Compact Disc Player

Here's a CD player with everything you need for pure and dynamic sound. If you're a digital purist, take a listen to the DX900 from dbx.

For mechanical rigidity and accurate performance unimpeded by vibration, we've come up with the "ZS" mechanism for the DX900. In it, the transport for our 3-beam laser pickup is made of a new material called zirconia ceramics. Highly resistant to abrasion and extremely



smooth, it runs the pickup with the least possible resistance over longer periods of time. The ZS mechanism also features a pickup deck made of two different materials in a "hybrid construction," to damp spurious vibration and resonance. We've fashioned spacers for the circuit board and the insulation feet out of fine ceramics, again to damp shock, vibration and resonance. Audibly better sound results.

Improvements extend to circuit designs, too. A 16-bit quadruple oversampling digital filter, operating at four times the normal sampling frequency, is combined with a gentle-slope 3rd-order Bessel analog filter, to provide accurate phase response and low noise. Twin 16-bit glitch-free D/A (Digital-Analog) converters, one for each channel, prevent phase

difference between channels and end glitch noise for smoother and well-defined sound. To shut out interference, we've separated the power supply for digital circuitry from one for analog. And to enhance purity of the signal, we've optically coupled the emphasis circuit with the output mute circuit. It all adds up to a sound that's extremely pure and clean.

The DX900's ease of operation is represented by a friendly display where messages in plain English ("WELCOME," "SET DISC," etc.) are shown. Another section of the front panel is an illuminated "calendar"-

style display with twenty keys. It serves as a bulletin board to show which tracks are programmed, which are played, etc. The keys are "direct call," which means that play starts right the moment they are pressed. There's a third display that shows the play time of a track in play, a disc's total play time, etc.

Notable convenience features include 24-track programming, index search, "BGM" (playback of tracks in random order), 3-way repeat (a single track, all tracks or A-B), a full-function remote control with 20-key numeric pad, a digital output terminal, and a headphone jack.





**SX-2****Dispersion Drive 3-Way  
Speaker System**

From the laboratories at dbx comes another innovative speaker design for better and more natural sound reproduction—the Dispersion Drive System. This new design formula is the perfect match for the immense dynamic capabilities of digital music.

The system features a flat "plug" placed in front of the woofer, a hard, non-resonating disc. The shape, material and size of the disc were chosen after careful auditioning for best combined results. Essentially, the function of the disc is to disperse the sound and equalize its acoustic output.

The unique DDS design provides the following four advantages.

First, the disc serves as an acoustic low-pass filter, which allows the LC network for the woofer to have a gentle cut-off response. This means a simpler network design and the use of LC components for smoother phase transfer between the woofer and the midrange drivers.

The second advantage is that the disc improves the dispersion of bass sound, propagating the sound over a wider range.

The third advantage of dbx DDS is that the disc acoustically controls the diaphragm movement of the woofer. This lessens the load to the woofer, improving efficiency—the reason the SX-2 is unusually efficient for its compact size.

And finally, the disc allows a

smooth crossover from woofer to midrange, ensuring well-defined sound and low coloration.

The dbx SX-2 is a 3-way, 4-speaker, bass-reflex design combining a 12-inch (30cm) woofer, two 4.5-inch (11.5cm) midranges and a 1-inch (2.5cm) tweeter. Crossover frequencies are 450Hz for the woofer/midrange and 5.5kHz for the midrange/tweeter. And thanks to its sturdy design, the speaker is ready to handle 300 watts of power.

The system also features attenuators to control response at mid and high frequencies, a cabinet that is finished in attractive wood grain, and a speaker stand for precise placement.

**SW-3830****Dispersion Drive System**

Here's another dbx Dispersion Drive System—a 15-inch (38cm) sub-woofer system. The plug-loaded woofer combines low distortion, high efficiency, smooth response and wide dispersion. It lets you enjoy tight and gutsy bass sound down to the lowest audible frequency. Add it to your hi-fi system to augment bass response for digital sound, or use it in a 3-D system for amazingly realistic video sound.





The SW-3830 comes complete with an electronic crossover network, so no expensive outboard frequency dividing network is required. And it operates purely electronically to prevent sound degradation. The system has a crossover frequency of 250Hz, and its response ranges from 300Hz down to a deep 18Hz. And the SW-3830 is an efficient bass-reflex design with rear duct.

Adding to the versatility of our subwoofer system are the two sets of voice coils wound on the same voice-coil bobbin—one driven by left-channel input and the other by right-channel input. This means that when used with our BX-3 or BX-2 power amps, you can feed outputs from the rear-channel stereo amps to drive both voice coils and enjoy doubly rich bass response.

There are two sets of terminals at back. When used with a conventional stereo amplifier with A and B speaker outputs you can feed outputs from a B system to create a genuine 3-D subwoofer system without any extra amplifier or crossover network. This connection flexibility means that the SW-3830 can be driven by a stereo amp and, of course, by a mono amp.

Our subwoofer uses a double-magnet system to cancel out the stray magnetism that may spill over outside the enclosure. So you can safely place the speaker near a TV or even under it without suffering color aberrations in the picture.

CATALOG/CRC 9385319

## LP-204

### Stereo Field Speaker System

The LP-204 is designed to overcome one of the major limitations of conventional speaker systems: flat response is only possible at one spot on the axis.

The LP-204 simply expands the optimum listening area to include the entire room. This was achieved by controlling not only on-axis response but off-axis response as well, so that the frequency response is smooth, wherever you seat yourself relative to the speaker.

The LP-204 is supplied in symmetrically matched pairs, with each unit composed of two sub-units: one for direct radiation of

sound and the other to send low-energy sound directly to the wall behind the listener. The sub-units rotate around a common axis on a pedestal, but can be separated for surround or video sound applications. The LP-204 is digital-ready thanks to its big power handling capacity of 300 watts.



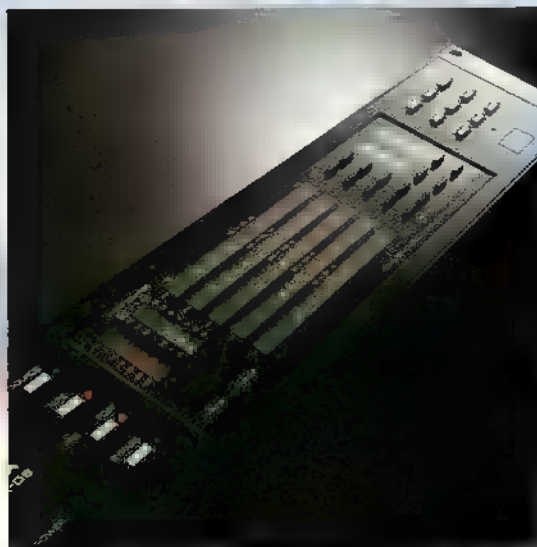


# dbx—a leader in



- 1971** dbx, Incorporated, established.
- 1973** dbx Noise Reduction System developed at dbx, Massachusetts.
- 1975** Studio 2-channel dbx NR released.  
Consumer 2-channel dbx NR released.  
3-band dynamic-range expander released.
- 1976** Linear dynamic-range expander/compressor released.  
Supraharmonic synthesizer released.
- 1979** 2-band dynamic-range expander released.
- 1981** 2-channel dbx Type II NR built from custom ICs released.  
Noise reduction/dynamic-range expander released.  
Computer-controlled 10-band graphic equalizer/spectrum analyzer released.
- 1982** 5-watt digital compressor added from custom ICs released.
- 1983** 3-band dynamic-range expander with noise restore released.  
Second-generation computer-controlled 10-band graphic equalizer/spectrum analyzer released.
- 1984** Surround/speakersystem released.
- 1985** Digital audio processor released.  
Compact Disc player released.
- 1986** Power/control amps released.
- 1987** History now a benchmark at dbx.

# the age of digital



Dynamic-Range Controllers  
Subharmonic Synthesizer  
Tape Noise-Reduction System  
Car Decoder  
Single-Ended Noise Reduction Unit  
Auto Computerized Equalizer/Analyzer  
Graphic Equalizer  
Program-Route Selectors  
Audio/Video Program Route Selector

Throughout its history, dbx has consistently designed components which not only advance the state of the art in their class, but also move high fidelity closer to our goal of perfect sonic reproduction. That's the dbx difference.

We have processors that let you control the dynamic range and frequency response—from dynamic-range expansion and compression to noise reduction and to graphic equalization. Our computer-controlled graphic equalizer/spectrum analyzers are technical triumphs, and feature automatic room equalization.

Our "mainstream" hi-fi products also stand out. Each of our power amplifiers can be operated as a stereo amp, 3-channel amp, or as a four-channel amplifier. We have a control amp that's ready to integrate video, and another that combines immense input-controlling capability with remote convenience. Our synthesized FM tuner has variable-frequency noise reduction system built-in.

There's a dbx CD player that comes equipped with dynamic-range controllers. Our soundfield speaker system has expanded the ideal listening position to the whole listening room, based on our theory of psycho-acoustically optimized field of sound.

All examples of just how committed dbx is to giving you the best sound possible, each with a dash of unique, original ideas.



**5BX-DS****Dynamic-Range Controller**

The 5BX-DS is a dynamic-range controller that not only lets you expand the dynamic range, but also compress it, giving you more comprehensive sonic control.

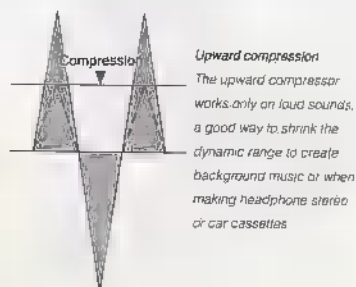
First, the 5BX-DS lets you perform downward expansion. This reduces gain variably below the threshold set by the transition level. At full expansion, the dynamic range of the program is increased by 50 percent over that of the original without affecting signals above the threshold. Operating like a "noise gate," this process cuts various types of noise such as tape hiss, rumble, record surface noise and hum.

Upward compression reduces gain variably above the threshold set by the transition level. At full compression, the dynamic range of the program material is completely

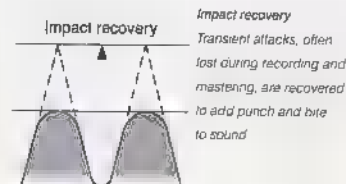
suppressed; in other words, the compressor operates as a peak limiter. Intermediate compression can also be performed using intermediate settings, of course. Using upward compression, you can take the wide dynamic range of CDs for dubbing onto tape, or subdue the dynamics to create a sound that's just right for background music. Thanks to our famous "OverEasy" (gradual-onset) circuits, the compression and expansion responses are curved slightly at transition thresholds to provide a more natural sound.

Another important effect is impact recovery. Simply put, it adds punch to the sudden transients in music by emphasizing their level by up to 10dB. So the snappy attack at the beginning of a snare drumbeat is reproduced with fully recovered impact to infuse more life and excitement into the music. You'll enjoy the benefits of the dbx impact recoverer, because with any

recording, analog or digital, high-level attacks are suppressed to some degree due to the limitations of recording/mastering equipment and to the practice by recording engineers and mixers of recording at the highest possible level. The dbx impact recovery circuit simply restores lost impact for you to enjoy. And for clear, natural sound, you can adjust the degree of impact, band by band, in five ranges (Ultra Low, Low, Mid, High and Ultra High).



In addition to these incredible dynamic-range control capabilities, the 5BX-DS Dynamic-Range Controller has a lot more to offer. You can store up to five responses, each combining the desired parameters, for dynamic-range control (expansion or compression) and impact recovery. This means you can preset the optimum dynamic-controller settings for jazz, classics or any kind of music you like. There's a battery backup system that retains preset

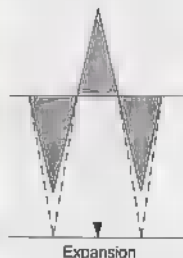


**dbx gives you a total control over dynamic range—expanding or compressing it**



settings even while the unit's power is off.

To facilitate operation, a large LED display shows the degree of dynamics and impact recovery at each of five frequency bands at any moment. You can "freeze" the indication for a closer look. And you can operate the unit from a full-function wireless remote control.



**Downward expansion**  
By making soft sound still softer, downward expansion reduces noise, rumble, hum and other undesirables to make them inaudible. The downward expander is a "noise gate" through which only the music is allowed to pass.



CATALOG STOCK/CRC 9275336

### 3BX-DS Dynamic-Range Controller

The 3BX-DS is four dbx processors in one. The dbx dynamic-range

expander increases overall dynamic range for more powerful music. The "OverEasy" dbx dynamic-range compressor trims the overall dynamic range—useful when dubbing CDs onto tapes or for background music listening. The 3-band expansion/compression ensures natural sound

by processing the signal band by band, while the transition levels can be fine adjusted for high- and low-frequency bands independently. The dbx impact recoverer gives back the explosive impact lost in the recording or mastering process. And the dbx ambience controller takes away the "edge" sometimes heard in digital sound, as well as trims the width of a "sound stage." dbx's 3BX-DS—for complete control over your sound.

CATALOG STOCK/CRC 9349119

### 1BX-DS Dynamic-Range Controller

Here's an affordable four-in-one dynamic-range controller, the

1BX-DS. It has every feature the 3BX-DS does: the dynamic-range expander, dynamic-range compressor, Impact recoverer and ambience controller. The only difference is that its expander and compressor work on

all frequencies rather than dividing them into three bands and operating band by band.



**Ambience controller**  
This feature lets you select the amount of separation—from wide to narrow. Used for CD playback, it removes the sharp "edge" that many audiophiles perceive.

## The 120X-DS gives you a new kind of depth perception

CATALOG STOCK/CRC 9374422

### 120X-DS Subharmonic Synthesizer

Ever wondered what happens to that deep bass that you can feel as well

as hear? The dbx 120X-DS lets you get it back. Our subharmonic synthesizer samples all bass frequencies between 54Hz and 110Hz and synthesizes corresponding frequencies exactly one octave lower—frequencies

down to 27Hz! Your music takes on new life and a new sense of power. Moreover, the 120X-DS provides controls for adjusting levels at four different frequency ranges, so you can add all the subharmonics you want. You can also use the 120X-DS as an electronic low-pass filter for a subwoofer in a 3-D system: there's a control to adjust the crossover frequency for well-balanced sound.





# Hiss-free tape sound for golden silences and explosive crescendos

CATALOG/CRC 9374539

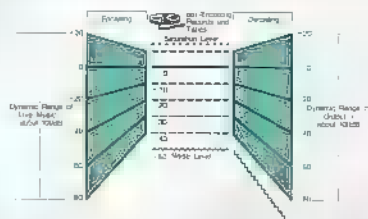
## 224X-DS Type II Noise-Reduction System

The dbx 224X-DS lets you fit a digital program's dynamic range of 90dB or more comfortably on cassette tape, a medium that can only accommodate 60dB at most, and enjoy exciting wide-range playback from every tape. How does it work?

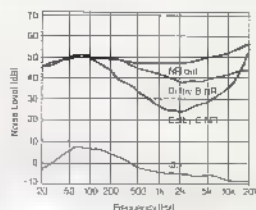
The key is in compressing the dynamic range at a linear ratio of 2:1 during recording, and expanding it back at a ratio of 1:2 ratio during playback. This cuts noise by as much as 40dB across the audible range. Couple it with increased

saturation level for the tape, and the result is that you have cassette or open-reel tape recordings rivaling Compact Discs in terms of dynamic range!

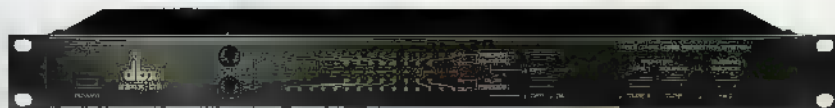
Conventional noise-reduction systems reduce tape hiss at certain frequencies, but dbx virtually eliminates it from the entire audible frequency range. The 224X-DS contains two noise-reduction circuits so that you can monitor the decoded sound on a 3-head deck as you make recording. Connecting two tape decks, you can encode a signal as you record or dub tapes. And dbx is free of the level-matching problems of other noise-reduction systems.



Record/Playback Process for dbx Encoding/Decoding



Reduction of Noise by Three NR Systems



CATALOG/CRC 9779000

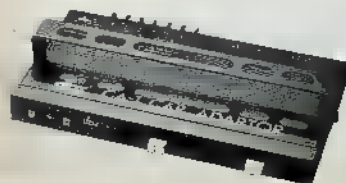
## CA-1 Car Decoder

The CA-1 decodes dbx-encoded tapes at a precise 1:2 linear expansion ratio, letting you enjoy the full dynamic range of live performances or recorded Compact Discs—right in your car—with not a hint of hiss.

Knowing many car stereos have no noise reduction facilities whatsoever, we've added a second position called dbx Type B, so that you'll enjoy good results with cassettes encoded by Dolby® B noise reduction system. The CA-1 has handy bass and treble tone controls to help you adjust taped sound more to your taste.

The CA-1 easily connects with all car stereos with separate cassette player and power amplifier, or outboard graphic equalizers. (Note that it cannot be used with all-in-one car stereos that combine cassette decks, tuners and amps.)

\* "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.



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## re for ailing sound—the ultimate hiss-remover from dbx

CATALOG/STOCK/CRC 9387002

### **SNR-1** Single-Ended Noise Reduction Unit

Here's a new noise reduction system that will usher in the new age in noise reduction: it reduces hiss noise from program sources by from 20dB to 40dB, whatever the source may be—records, tapes, Compact Discs, VCR sound, TV sound, whatever.

What do you *not* hear? Hissy and muffled sound from audio and video tapes. Persistent surface noise from worn records or poor pressings. High-frequency noise from weak-

signal FM broadcasts. Constant high-frequency noise heard in Compact Discs mastered from old recordings. The silence the dbx SNR-1 provides is total.

The SNR-1 is not a two-way "closed" system, one that requires you to encode a signal and decode it later to enjoy the proper noise-reduction effect. It's a one-way "single-ended" system: it requires no prior encoding so that the system is exceptionally easy to use.

How did we do it? The secret is the variable-frequency signal-pass device. When there's no music, it simply eliminates high-frequency

noise—surface noise, tape hiss, background noise, etc.—to treat you to total silence. But when there's music, the device dynamically varies the cut-off frequency according to the level of high-frequency energy contained in the music. So it will never eliminate vital high-frequency musical information, nor will it affect the overall dynamics of the music.

Moreover, a variable-threshold level control lets you adjust the threshold level, program source by program source; you can apply noise reduction as you like. This ensures you enjoy most natural sound at all times.

Improving the operating convenience are LED meters to indicate the variable cut-off frequency and the effective input level with respect to the threshold level setting; pre/post and bypass switches; and a source/tape monitor switch.

Giving a new life to music that's lifeless—that's what the dbx SNR-1 is all about.





CATALOG/CRC 9357336

## 14/10 Computerized Equalizer/Analyzer

The dbx 14/10 comprises four components that together make equalization simple and accurate—a 14-band graphic equalizer, a real-time analyzer, a precision pink-noise generator with a calibrated mic, and a CPU microcomputer.

You probably have heard how well equalizers work in bringing dramatic improvements to the sound of hi-fi systems. These benefits, however, are lost if you are forced to rely on an inaccurate frequency measuring apparatus: the human ear. Our computer-controlled 14/10 lets you enjoy all the benefits of accurate equalization thanks to a number of technological advances.

The 14/10 offers fourteen center frequencies to control: there is one frequency control for each octave above 500Hz, but below that frequency, there's one for each half octave, to give you more control over that critical frequency range. The "Q" of each filter is constant in order to

keep interference to a minimum.

The 14-band automatic real-time spectrum analyzer of the 14/10 features the precision of professional measuring equipment. It gives you a continuous readout of the volume levels at all frequency bands: you can actually watch the music as you listen. Sensitivity is automatically adjusted for easy reading at any level, while the selectable response speeds let the analyzer respond like a VU meter or a peak meter.

The 14/10 comes with a pink-noise generator and a precision microphone individually calibrated at factory and supplied with the unit. Combine them with computer operation, and you can automatically equalize the room with top accuracy. To do so, place the microphone at the listening position, turn on the pink-noise generator, and press the AUTO EQ button. Within 15 seconds (on the average), the 14/10 will equalize that location with accuracy that only a computer can provide. For accuracy, the computer repeats the measure-and-equalize process over and over until the response is as flat as technically possible.

The 14/10 has another computer-controlled feature: in ten memory banks you can store not only room equalizations but also your own personalized equalization curves. For convenience, you can also automatically average a number of equalization curves stored in the memory banks for the best tonal balance over a wide listening area. Of course, you can record an equalized source to make tapes that will sound crisp and balanced in the car or on headphone stereos.

Moreover, the 14/10 provides a digital sound-level indicator, showing a continuous measure of the total volume level of your music in digits. There is an HFR (High-Frequency Roll-off) CURVE control that softens high-frequency response to recreate the acoustics of a concert hall. And precision electronic switches permit smooth manual equalization, channel by channel or both channels simultaneously.

## Equalizing the sound the dbx way—with precision and convenience

CATALOG/CRC 9359415

### 2015G Graphic Equalizer

Most graphic equalizers are octave equalizers, that is, they have controls arranged at one-octave intervals. But with our 2015G 15-band equalizer, we've provided one-half octave equalization in the most critical low-

frequency range, while normal octave equalization is retained at the less critical high end. This arrangement lets you correct just about any sound problems caused by odd room acoustics, non-flat speaker response or inadequate source material. For versatility, each frequency can be adjusted over a

$\pm 12\text{dB}$  range or a finer  $\pm 6\text{dB}$  range, channel by channel. Other features include attenuators for each channel, pre/post/bypass switches, LED indicators for all switches, rack-mount design, and superb specifications for professional applications.







CATALOG/STOCK/CRC 9363706

### 400XG Program Route Selector

The 400XG solves all your audio hookup problems in a single stroke. It has inputs for as many as three decks (or CD players), three sound processors, and a noise-reduction

unit. With pushbutton ease, you can select the processor of your choice, the deck (or CD) of your choice, and add noise reduction.

In addition, the 400XG lets you produce from an un-encoded tape an encoded copy that incorporates any combination of noise reduction

and sound processing of your choice. In the same way, an NR-encoded music tape can be made into a non-encoded copy that incorporates any combination of sound processing you choose.

### 200XG Program Route Selector

Sound processors are essential to fully enjoy today's music, especially digital music, but hooking them all up can

be a problem.

No longer. The dbx 200XG Program-Route Selector solves connection problems. The unit lets you easily hook together as many as three decks (or CD players), three sound processors, and a noise

reduction unit—all through a single tape-monitor loop of your amp, preamp or receiver.

You can dub tapes between three decks, and the pre/post switch lets you add processing before or after recording (but not dubbing).

## Giving order and organization to your integrated audio/video

CATALOG/STOCK/CRC 9388902

### 500XR Audio/Video Program Route Selector

The 500XR lets you end connection problems, problems that you have had to live with if you own a number of audio and video components. Not only does it give streamlined organization to your audio/video setup, it also adds versatility and flexibility to your home entertainment system. And it's ultra-convenient: all switching and selection can be done from the full-function remote control supplied.

The dbx 500XR connects: LINE-1 and LINE-2 for audio program sources, TAPE-1 and TAPE-2 for audio tape recording/play, VDP for videodisc, VCR-1 and VCR-2 for video recording/play, AUDIO PROC for audio processing, and VIDEO PROC for video processing. There's also a monitor output for a TV or video display.

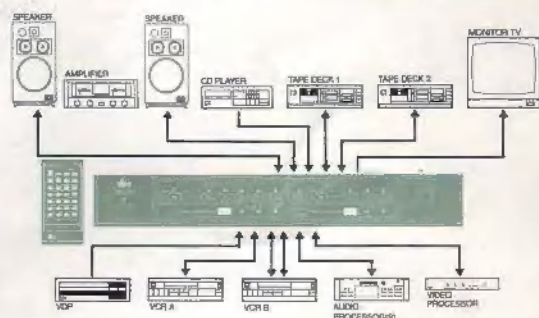
The operating versatility of the

500XR is truly staggering, as is the number of components it can handle. You can monitor audio while watching a video program—a simple way to enjoy "ambience videos" against the background of your favorite music. It's also possible to dub between two audio decks or between two VCRs. Interestingly, you can even dub from audio tape to video tape, and vice versa. This lets you, for instance, dub hi-fi video sound on an audio tape. In addition, you can add a new soundtrack to the tape you produced while you edit it.

Moreover, the 500XR connects an audio processor (graphic equalizer, dynamic expander, noise reduction system, etc.) as well as a video processor (video enhancer, color corrector, special-effects generator, etc.). So, when you dub video tapes, you can improve both the sound and video quality.

Switching and controlling is achieved electronically with the assistance of a microcomputer. This offers two advantages. One, using touch-sensitive tactile switches, the unit operates comfortably. Two, electronic control reduces insertion loss and crosstalk, since switching is done all electronically.

And to top it all off, you can operate the dbx 500XR from a hand-held remote. It's a full-function remote control offering POWER ON/OFF, MONITOR SELECTION, PROC ON/OFF, MODE, and AUDIO/VIDEO INPUT SELECTION. It virtually puts the control of our program route selector in the palm of your hand.



Connection Diagram





# Specifications

## CX-3 Control Amplifier

Frequency Response	20–20 kHz ( $\pm 0.25$ dB)
Phono (MM)	10–80 kHz ( $\pm 0$ , $-3$ dB)
CD, Tuner, AUX	
S/N (IHF-A)	
Phono (MM)	>82 dB
(MC)	>64 dB
CD, Tuner, AUX	>100 dB
THD	
Phono (MM)	<0.01% (20–20 kHz, 3 V)
(MC)	<0.02% (20–20 kHz, 3 V)
CD, Tuner, AUX	<0.008% (20–20 kHz, 3 V)
Maximum Output Level	8 V (20–20 kHz)
Output Impedance	600 ohms
Tone Control	
BASS	$\pm 10$ dB
MID	$\pm 10$ dB
TREBLE	$\pm 10$ dB
Loudness	+8 dB (100 Hz)
Dolby Surround	
Delay Time	20 ms
THD	<0.7% (1 kHz)
Power Requirements	120/220/240 VAC, 50/60 Hz
Dimensions (W×H×D)	18-3/4"×4-1/8"×12-5/8"
Weight	15-1/8 lbs.

## BX-3 Power Amplifier

Power Output (RMS, 8 ohms, 20–20 kHz)	
4 ch. driven	125 W×4 (THD<0.003%)
3 ch. driven	125 W×2 (THD<0.003%)
	350 W×1 (THD<0.01%)
2 ch. driven	350 W×2 (THD<0.01%)
Power Output (Dynamic, IHF A-202)	
Separate Mode	180 W/channel (8 ohms)
	320 W/channel (4 ohms)
	450 W/channel (2 ohms)
Bridge (BTL) Mode	600 W/channel (8 ohms)
	800 W/channel (4 ohms)
	900 W/channel (2 ohms)
Load Impedance	2–6 ohms, 6–16 ohms (Switchable)
THD	<0.003% (125 W RMS power output, Separate mode)
Frequency Response	DC–200 kHz ( $\pm 0$ , $-3$ dB at 1 W)
Damping Factor	>50 (at 1 kHz)
S/N (IHF-A)	115 dB
Channel Separation	>90 dB
Input Sensitivity	1.2 V
Separate Mode	0.9 V
BTL Mode	20k ohms
Input Impedance	120/220/240 VAC, 50/60 Hz
Power Requirements	120/220/240 VAC, 50/60 Hz
Dimensions (W×H×D)	18-3/4"×5-3/4"×16"
Weight	46-1/2 lbs.

## TX-3 Stereo Tuner

FM Stereo Sensitivity	9.3 dBf
S/N	85 dB
THD	0.04% (stereo)
Power Requirements	120/220/240 VAC, 50/60 Hz
Dimensions (W×H×D)	18-3/4"×3-1/8"×13-1/2"
Weight	10-1/2 lbs.

## CX-2 Control Amplifier with Remote Control

S/N	91 dB (phono MM 5 mV)
	70 dB (phono MC 500 $\mu$ V)
	110 dB (line/tape 150 mV)
Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	17-1/2"×3-1/2"×12-15/16"
Weight	11 lbs.

## BX-2 Power Amplifier

Power Output (RMS, 8 ohms, 20–20 kHz)	
4 ch. driven	90 W×4 (THD<0.009%)
3 ch. driven	90 W×2 (THD<0.009%)
	250 W×1 (THD<0.02%)
2 ch. driven	250 W×2 (THD<0.02%)
Frequency Response	2–200 kHz ( $\pm 0$ , $-3$ dB)
THD	0.009% (at 4 channel, 8 ohms)
S/N	115 dB
Power Requirements	120/220/240 VAC, 50/60 Hz
Dimensions (W×H×D)	17-1/2"×5-5/8"×16-3/4"
Weight	40-1/8 lbs.

## DX5 Compact Disc Player with Wireless Remote Control

Frequency Response	5–20 kHz ( $\pm 0.3$ dB)
Dynamic Range	96 dB
THD	0.003%
S/N	96 dB
Wow and Flutter	Unmeasurable
Sampling Frequency	44.1 kHz
Channel Separation	85 dB (at 1 kHz)
Error Correction	CIRC
Maximum Output	2 Vrms
Power Requirements	100/120/220/240 VAC, 50/60 Hz
Dimensions (W×H×D)	19"×3-1/2"×11-7/8"
Weight	12 lbs.

## DX900 Compact Disc Player with Wireless Remote Control

Frequency Response	5–20 kHz $\pm 0.5$ dB
THD	0.0035%
Dynamic Range	>96 dB
Wow and Flutter	Unmeasurable
Output Level	2 Vrms
Output Impedance	1 k ohms
S/N	>96 dB (IHF-A weighted)
Channel Separation	90 dB (1 kHz)
Power Requirements	100/120/220/240 VAC, 50/60 Hz
Dimensions (W×H×D)	17"×3-1/2"×12"
Weight	11-1/2 lbs.

## SX-2 Dispersion Drive Speaker System

Frequency Response	20–20 kHz
Sensitivity	Greater than 93 dB (1 W/1 m)
Impedance	8 ohms
Crossover Frequencies	450 Hz and 5.5 kHz
Speaker Units	1×12" woofer 2×4.5" midrange 1×1" dome tweeter
Rated Amplifier Range	10–300 watts
Dimensions (W×H×D)	15-3/4"×27-1/2"×13"
Weight	44-1/2 lbs.

## SW-3830 Dispersion Drive Subwoofer System

Maximum Input Power	300 watts
Frequency Response	18–300 Hz
Sensitivity	Greater than 95 dB (1 W/1 m)
Impedance	8 ohms/8 ohms (stereo)
	4 ohms (mono)
Crossover Internal	250 Hz
Driver Size	15"
Rated Amplifier Range	30–300 watts
Dimensions (W×H×D)	23-5/8"×18-3/4"×12-1/4"
Weight	44-3/8 lbs.

## LP-204 Stereo Field Speaker System

Type of Speakers	
Main Unit	2-way bass reflex 1×3-1/5/16" cone 1×1-1/5/16" cone 1-way bass reflex 1×3-1/5/16" cone
Sub Unit	1×3-1/5/16" cone
Music Power	300 W
Max. Power	150 W
Rated Power	50 W
Impedance	6 ohms
Efficiency	91 dB (1 W/1 m)
Frequency Response	55–20 kHz (Overall)
Dimensions (W×H×D)	11-13/16"×11-13/16"×5-1/16" (Main Unit) 11-13/16"×5-7/8"×5-1/16" (Sub Unit) 11-13/16"×5-7/8"×5-1/16" (Overall)
Weight	10-5/16 lbs. (Main Unit) 5-3/16 lbs. (Sub Unit) 5-1/8 lbs.

## 5BX-DS Dynamic Range Controller with Remote Control

Expansion	Over Easy, from none to 1:1.5 maximum 20 dB downward
Impact Restoration Gain	To potential +10 dB (upward only)
Compression	Over Easy, from none to infinite maximum 40 dB
Frequency Response	20–20 kHz $\pm 0.5$ dB
Dynamic Range	106 dB
THD	0.15%
Equivalent Input Noise	–90 dBV
Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	19"×1-3/4"×11-7/8"
Weight	10-1/4 lbs.

## 3BX-DS Three-Band Dynamic Range Controller

Expansion	Variable from none (1:1) to 50% (1:1.5) each band 0 to –50% (2:1)
Compression	0 to +10 dB each band
Impact Restoration Gain	Greater than 107 dB
Dynamic Range	20–20 kHz $\pm 0.5$ dB
Frequency Response	Less than 0.15% at no expansion
THD	–90 dBV
Equivalent Input Noise	Program-dependent, optimized for each band
Attack and Release Rates	Set at 200 mV, ranges from 70–600 mV
Transition Level	100–120/220–240 VAC, 50/60 Hz
Power Requirements	19"×1-3/4"×8-3/4"
Dimensions (W×H×D)	6-1/8 lbs.
Weight	

## 18X-DS Dynamic Range Controller

Expansion	Variable from none (1:1) to 50% (1:1.5) 0 to –50% (2:1)
Compression	0 to +10 dB
Impact Restoration Gain	20–20 kHz $\pm 0.5$ dB
Frequency Response	Less than 0.15% at no expansion
THD	–90 dBV
Equivalent Input Noise	Set at 200 mV, range from 70–600 mV
Transition Level	100–120/220–240 VAC, 50/60 Hz
Power Requirements	19"×1-3/4"×8-3/4"
Dimensions (W×H×D)	5-3/4 lbs.
Weight	

## 120X-DS Subharmonic Synthesizer

Frequency Response	25–20 kHz $\pm 1$ dB
THD	Less than 0.05%
Synthesized Frequency	27–55 Hz with 55–110 Hz input
Frequency Response	–85 dBV controls @ maximum
LF Boost	+6 dB
Subharmonic Synthesis	+9 dB
Crossover Frequency	50–200 Hz adjustable
Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	19"×1-3/4"×8-3/4"
Weight	6 lbs.

## SNR-1 Single Ended Noise Reduction System

Effective Noise Reduction	Up to 40 dB (program dependent)
Frequency Response	20–20 kHz ( $\pm 0.5$ dB)
THD	0.1% (100 Hz–20 kHz)
Dynamic Range	105 dB
Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	19"×1-3/4"×8-3/4"
Weight	5-7/8 lbs.

## 224X-DS Tape Noise Reduction System

Effective Noise Reduction	40 dB or more, depending on deck
Frequency Response	40–20 kHz $\pm 0.5$ dB
Dynamic Range	105 dB
THD	0.1% (100 Hz–20 kHz)
Equivalent Input Noise	–88 dBV
Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	19"×1-3/4"×8-3/4"
Weight	6 lbs.

## CA-1 Noise Reduction Decoder for Car Audio

Dynamic Range	100 dB
Frequency Response	Folded dbx Type II decoding curve 30–20 kHz $\pm 1.0$ dB
THD	<0.3% (at 1 kHz)
Tone Control Range	$\pm 12$ dB at 100 Hz and 10 kHz
S/N	100 dB
Input Level	20 mV–1 V (set at 100 mV)
Power Requirements	12 V DC (10.5–15.5 V)
Dimensions (W×H×D)	6"×9-1/8"×3-1/16"
Weight	13 ozs.

## 14/10 Fully Computerized Automatic Equalizer/Analyzer

Center Frequencies	31.5, 45, 63, 90, 125, 160, 250, 380, 550, 1k, 2k, 4k, 8k and 16 kHz
Control Range	$\pm 12$ dB
Frequency Response	20–20 kHz $\pm 0.5$ dB
THD	Less than 0.03%
S/N	100 dB
Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	19"×3-1/2"×11-7/8"
Weight	11-3/8 lbs.
Accessories	Microphone, instruction manual, warranty registration card

## 2015G Stereo Frequency Equalizer

Frequency Response	5–100 kHz $\pm 0.5$ dB
THD	0.006%
Equivalent Input Noise	110 dB
Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	18"×1-3/4"×8-3/4"
Weight	4-7/8 lbs.

## 200XG Program Route Selector

Dimensions (W×H×D)	19"×1-3/4"×7-1/2"
Weight	4 lbs.

## 400XG Program Route Selector

Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	19"×1-3/4"×7-1/2"
Weight	5-1/16 lbs.

## 500XR Audio/Video Program Route Selector with Remote Control

Power Requirements	100–120/220–240 VAC, 50/60 Hz
Dimensions (W×H×D)	17-1/2"×2-5/8"×12-1/2"
Weight	8 lbs.

\* dbx is a registered trademark of dbx.

\* "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Design and specifications are subject to change without notice for improvements.

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